

Presentation to the CCS Task Force Stakeholders Meeting

Howard Herzog

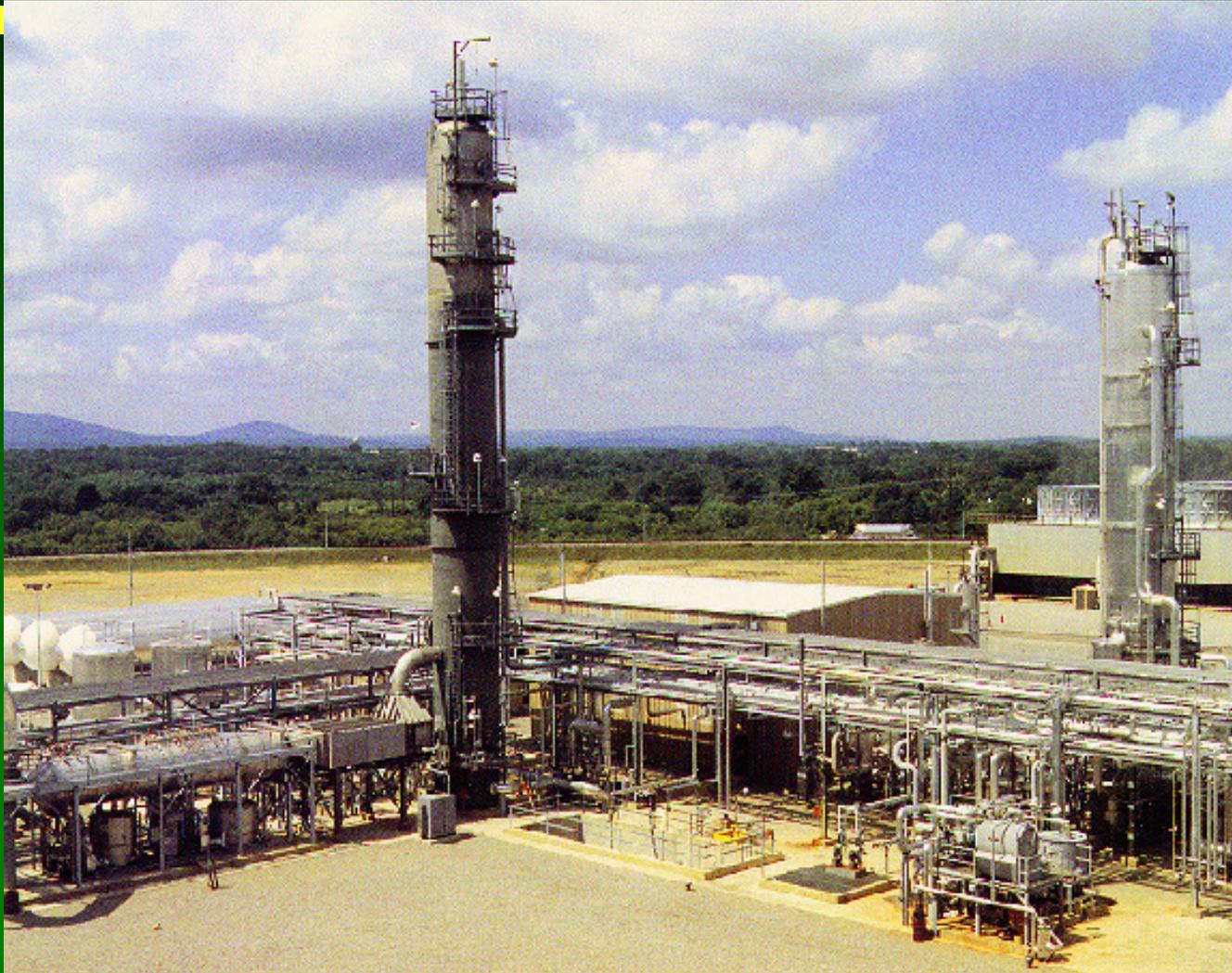
MIT

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CCS Today

- All major components of a carbon capture and sequestration system are commercially available today.
 - Capture and compression
 - Transport
 - Injection
 - Monitoring
- However, there is no CCS industry – even though the technological components of CCS are all in use somewhere in the economy, they do not currently function together in the way imagined as a pathway for reducing carbon emissions.

CO₂ Capture at a Power Plant



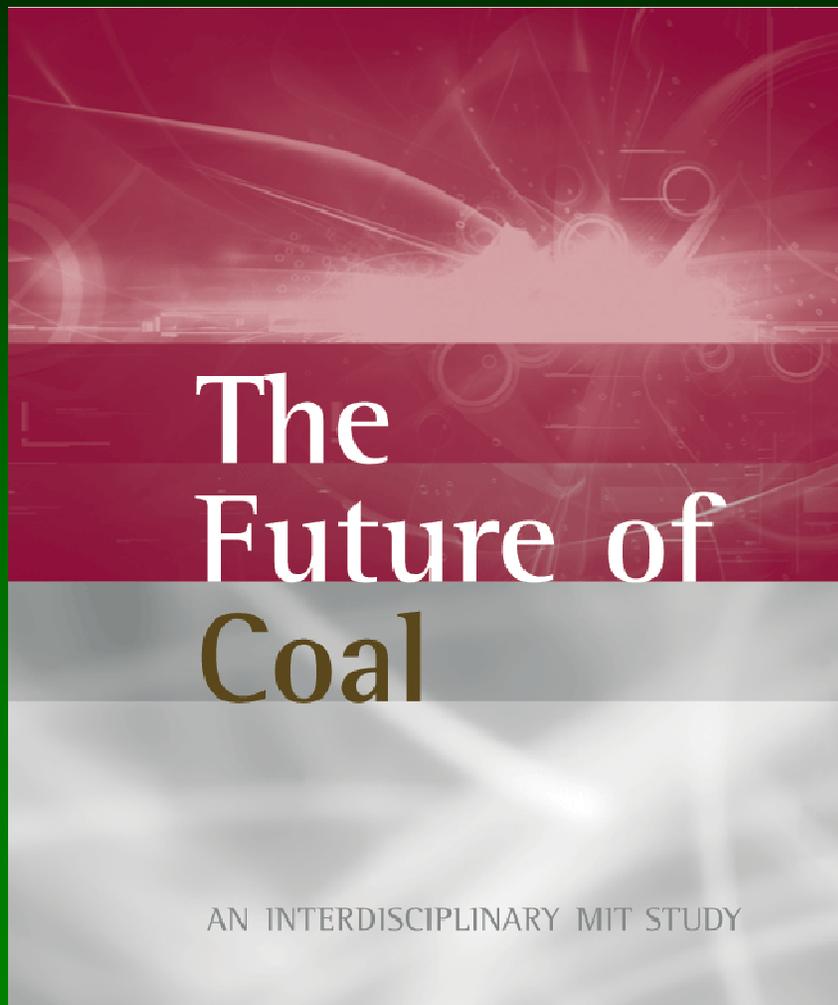
Source: ABB Lummus

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Improving CO₂ Capture Technology

- Major challenge for CO₂ Capture is to reduce costs
 - Improve current (post-combustion) capture technology
 - » Improved solvents
 - » Improved designs
 - Change power plant to make capture easier
 - » Oxy-combustion
 - » Pre-combustion

The MIT Coal Study



- Released March 14, 2007
 - On web at mit.edu/coal
- We conclude that CO₂ capture and sequestration (CCS) is the critical enabling technology that would reduce CO₂ emissions significantly while also allowing coal to meet the world's pressing energy needs.

CCS Demonstrations

- Demonstration of technical, economic, and institutional features of carbon capture and sequestration at coal conversion plants will
 - give policymakers and the public greater confidence that a practical carbon emission control option exists
 - shorten the deployment time and reduce the cost for carbon capture and sequestration should a carbon emission control policy be adopted, and
 - maintain opportunities for the lowest cost and most widely available energy form to be used to meet the world's pressing energy needs

MIT Coal Study Central Message

CCS Deployment

- A market for CCS must be created
- Early on, it is likely that a carbon price will be insufficient to support large-scale CCS deployment – additional support will be required
- Deployment policies should focus on spurring innovation as well as increasing deployment

Summary

- Need a blend of technology push and market pull
- The government needs to play a big role in technology push – this is relatively cheap and can be done immediately – matter of \$ - either direct subsidies or policies to encourage private investments
- Ultimately, climate policy and/or regulation must create markets for low-C technologies
 - CCS uneconomic in today's markets – costs money
 - CCS may be a least cost supplier in low-C markets – saves money

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